| Work Order April-22-13 1:41:1 | | 0476 | | *100 | 147 | '6 * | | | | | | | Page | 1. |
|---|-------------------|--------------------------------------|--------------------------------|----------------------|------------------|--------------------------|------------|--------------|---------------|------------|---------------|------------------|----------------|--|
| Revision ID: | 3463-5 and Cap | | | Accept | */ | 1900 | 040 | 100 |)* | Setup | Start Stop | | S1* S2* | · · · · · · · · · · · · · · · · · · · |
| Start Date: 5/. Required Date: 5/. Reference: | 31/13 31/13 | Start Qty: 12.00 Req'd Qty: 12.00 | *12* *12* | | | Cust Item 1 Customer: | D: | | | | | - | | |
| | | an: MLJ | | | | | ate: | | | Run | Start Stop | *N *N | R1* R2* | t : : : : : : : : : : : : : : : : : : : |
| Sequence ID/ Work Center ID | | Operation Description | | Set Up/ Run Hours | | Tool ID | Tool # | Plan Code | Accept Qty | Rej Qty | | Reject Number | Insp. Stamp | |
| Draw Nbr | Rev | vision Nbr | | | | | | | | | | | | |
| D3463 | Rev | / B | | | | | | | | | | | | • * |
| *100* Waterjet | | FLOW WATER JET | | 0.00 | 0 | | | | 19 | 0 | | | Jm 16 | 1-1-4 |
| FLOW CNC Waterjet | | I-Cut as per Deburr if ned | Dwg D3463 Dwg Rev:_ cessary | B Prog Rev: | <u>15</u> 2- | | | | | | | | •••; | Company of the Compan |
| *110* | | QC2- Inspect parts off ma | achine FAI/FAIB | 0.00 | | | | | 12 | ٥ | | | Jm 14 | -1-4 |
| QC Quality Control | | Memo | | 0.00 | | | | | | | | | | |
| 120 | | QC8- Inspect parts - seco | and check | 0.00 | AS 27 9-89 | | | | 12 | | | | | |
| *120* QC Quality Control | | Memo | | 0.00 | [1]7 | | | | 14 | | | | | = * |

| | | | | | | | | | | DQA: | Date: | |
|---|---|----------|-----|--|---|----------------------------|--|--|---|--|---------------------------|--|
| NCR: Ye | es / No | | | | WORK ORDER NON | -COi | NFORM | MANCE / UP | DATE | QA Closed: | Date: | |
| Work Ordei | · | | | | DISPOSITION | AGAINST DEPARTMENT/PROCESS | | | | | | |
| Part No. NCR No. | | | | Rework Scrap Use-as-is Work Order Update | | f Therm | Skid-tube Crosstube Machining Small Fab moforming Finishing Large Fab Composite | | Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier | | Engineering Quality Other | |
| Root Cause | Date | Step | Qty | | ription of work order update or Non-conformance | | Initial nief Eng | | tion ription | Sign & Date | Verification | QC Inspector |
| oc/Data quip/Tooling Operator Material Setup Other Process Supplier Fraining Unapproved | | | | | | | | | | | | |
| | • | • | | | | FAUL | T CATE | GORY | | | | |
| Landin | | | | | General | | · · · · · · · · · · · · · · · · · · | | · | 7 | | |
| | Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion | | | | Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing | \(\frac{1}{5}\) | Instruct Mainte Mislabe Misread Offset | rdware pection Incomplete tructions Incomplete/Unclear aintenance slabeled sread | | Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/ | ct ssing Vrong | Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other |
| | Turning S | Sequence | | | Finish | | Out of S | Sequence | | | | |

Outside Dimensions

Wave/Twist in Tube

Folio

0.00

Memo

Quality Control

MH.0.1.8

DAS

26

| NCR: Yes / No |
|---------------|
|---------------|

| NCR: Y | es | / No | | | | WORK ORDER NON- | -COI | VFORN | AANCE / UPD | DATE | | DQA: | | ate: | |
|---|--|------|--|--|---------------------------------------|---|--|--------------------------------------|--|---|---------------------------|--------|--|------|--|
| Vork Orde | r. | | | | | DISPOSITION | | | QA Closed: Date: AGAINST DEPARTMENT/PROCESS | | | | | | |
| Part No | | | | Rework Skid-tube Machining Use-as-is Thermoforming Large Fab | | | Crosstube Small Fab Finishing Composite | Prod. Eng. Coor. Rec/Store/Packaging | | | Engineering Quality Other | | | | |
| Root | Т | ĺ | | | Descr | ription of work order update | | Initial | Acti | ion | | Sign & | | | |
| Cause | | Date | Date Step Qty or Non-conformance Chief Eng Description | | | Date | Verificati | on | QC Inspector | | | | | | |
| oc/Data quip/Tooling perator faterial etup other rocess upplier raining | | | | | | | | | | | | | | | |
| • | | | | | · · · · · · · · · · · · · · · · · · · | | FAUL | LT CATE | GORY | | | | - "" | | |
| Landir | Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion Turning Sequence | | | General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing Finish | | Grain Hardware Inspection incomplete Instructions Incomplete/Unclear Maintenance Mislabeled Misread Offset Out of Calibration Out of Sequence | | | | Over/Under tolerance Part Incorrect Part Lost/Missing Part Moved Positioned Wrong | | | Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other | | |
| | | - | equence | ! | n | | | Out of S | | | | | | | |

Picklist Print Page 1 April-22-13 1:41:18 PM Work Order ID: 100476 Parent Item: D3463-5 **Start Date: 5/31/13** Required Date: 5/31/13 Parent Item Name: End Cap **Start Qty: 12.00** Required Qty: 12.00 IPP REV. A 05.11.18 NEW ISSUE EC Comments: IPP Rev:B Now on Waterjet 06-06-15 JLM Qty per Kit Total Status Component Item ID/ Replacement Mfg/ Last Unit of Qty on Qty Date Bin **Primary** Route Measure Hand Item Name Item ID Location Seq ID Qty Issued Issued Location Purch Item _0.1768416 M304S16GA 100 295.0214 No 0.014 Purchased J~ 4-1-4 304/316 Sheet .063 Location Loc Qty Loc Code MAT020 295.0213688 122245 0.1713688 123136 140.8 124428 36 124572 118.05 126915

126915

| | | | | | | | | | | | DQA: | Date | | |
|-------------------|--|-----------|----------------|-------------------|--------|----------------------------|-----------|-----------------------|------------------|---------------|--------------|------------------|--------------------|--|
| NCR: | Yes | / No | | | | WORK ORDER NON- | COI | NFORM | MANCE / UP | DATE | | | | |
| | | | | | | | | | | | QA Closed: | Date | | |
| Work Order: | | | | DISPOSITION | | AGAINST DEPARTMENT/PROCESS | | | | | | | | |
| | | | | Rework | | Skid-tube Crosstube | |] | Water Jet | Engineering | | | | |
| Part No. | | | | Scrap | | ſ | Machining | Small Fab | Pro | d. Eng. Coor. | Quality | | | |
| | | | | | | | | | Finishing | Rec/Sto | re/Packaging | Other | | |
| NCR No. | | | | Work Order Update | | | |] | Supplier | | | | | |
| Doot | | | T | | Danasi | | _ | | A = | *: | C: 0 | ı | <u> </u> | |
| Root | | Data | CARR | | | ption of work order update | | Initial | | tion | Sign & | Vanification | OC Increases | |
| Cause | | Date | Step | Qty | | or Non-conformance | Cr | Chief Eng Description | | Date | Verification | QC Inspector | | |
| Doc/Data | H | | | | | | : | | | | | | | |
| Equip/Tooling | H | | | | | | | • | | | | | | |
| Operator Material | | | | | | | | | | | | | | |
| Setup | . | | | | | | | | | | | | | |
| Other | | | | | | | | | ! | | | | | |
| Process | - | | | | | | | | | | | | | |
| Supplier | H | | | | | | | | | | | | | |
| Training | | | 1 | | | | | | | | | | | |
| Unapproved | | | Ì | | | | | | | | | | | |
| | | · | - * | <u> </u> | · | | AUI | LT CATE | GORY | | <u> </u> | • | | |
| Land | ing (| Gear | | | | General | | | | | | | | |
| | | Bending | | | | Bend | | Grain | | | Ovalized | | Pressure/Forced | |
| | | Centre N | ot Conce | ntric to | o/s | BOM/Route | | Hardwa | re | | Over/Under | tolerance | Temperature/Cure | |
| | | Cracks | | | | Broken/Damaged | | Inspecti | ion Incomplete | | Part Incorre | ct | Weld | |
| | | Crushed/ | Crimped | | | Burrs | | Instruct | ions Incomplete/ | Unclear | Part Lost/M | issing | Wrong Stock Pulled | |
| | | Cuffs | | | | Contamination | | Mainte | enance | | Part Moved | | _ | |
| | | Heat Trea | at | | | Countersink | | Mislabe | eled | | Positioned \ | Positioned Wrong | | |
| | Inspection Strip in Tube | | | Cut Too Short | | Misread | | | Power Loss/ | Surge | Other | | | |

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

| D3065-5DART AEROSPACE LTD | Work Order: | 100476 |
|------------------------------|--------------|-------------|
| Description: End Cap | Part Number: | D3463-5 |
| Inspection Dwg: D3463 Rev: B | - 44 | Page 1 of 1 |

FIRST ARTICLE INSPECTION CHECKLIST

X First Article Prototype

| Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Com | ments | |
|----------------------|---------------------------------------|---------------------|----------|--------|-------------------------|-------------|--|--|
| 0.15 | +/-0.030 | 0.15 | <i>-</i> | | V | Jomos | | |
| ેલ્ડ 0.10 | +/-0.030 | 0.10 | _ | | Ų | | | |
| R0.17 | +/-0.030 | (F1.0 | | | RG | | · | |
| R0.50 | +/-0.030 | 0.30 | | | RG | | | |
| 0.58 | +/-0.030 | 0.55 | | , , , | V. | | | |
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| | · · · · · · · · · · · · · · · · · · · | | 27 | | | | | |
| Measured by: | α | Audited by: | | | Prototype A | nnroval: | N/A = | |

Measured by: Jm Audited by: 9-89 Prototype Approval: N/A

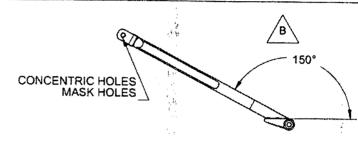
Date: 14-1-4 Date: N/A

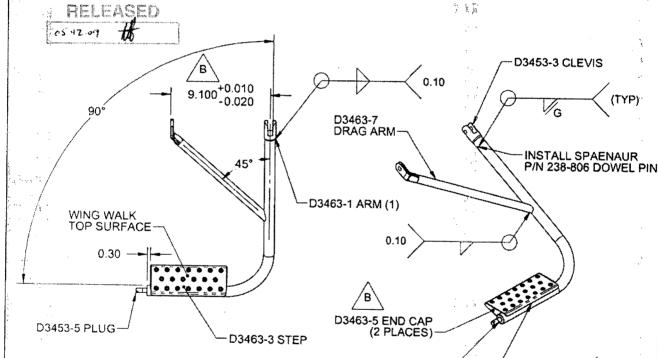
| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------|---------------|----------|
| Α | 06.07.11 | New Issue | KJ/JLM ox | E |



DESIGN DRAWN BY DART AEROSPACE LTD RF RF HAWKESBURY, ONTARIO, CANADA CHECKED APPROVED A DRAWING NO. REV. B D3463 SHEET 1 OF 4 DATE TITLE **SCALE** 05.12.05 STEP WELDMENT 1:8 Α 05.09.20 NEW ISSUE 8 05.12.05 REVISE DIM.; D3463-5 WAS D3463-5F

INSTALL P/N 238-806 DOWEL PIN V_G MASK THREAD AREA 1.045





NOTES:

1.6

- 1) WELD PER DART QSI 004
 2) FINISH: POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3
 BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
 4) ALL DIMENSIONS ARE IN INCHES
 5) BREAK ALL UNMARKED SHARP EDGES 0.005 TO 0.010
 6) IDENTIFY WITH DART P/N USING FINE POINT PERMANENT INK MARKER

<u>D3463-042 STEP WELDMENT ASSEMBLY</u> D3463-041 OPPOSITE

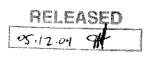
V_G

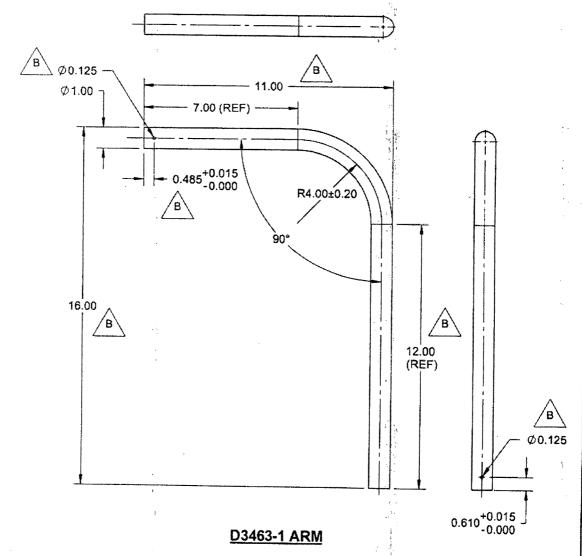
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| DESIGN RF | DRAWN BY RF | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | | | | | | |
|--------------|----------------|---|------------------------|--|--|--|--|--|
| CHECKED | APPROVED | D3463 | REV. B SHEET 2 OF 4 | | | | | |
| DATE 05.1 | 12.05 | STEP WELDMENT | SCALE | | | | | |



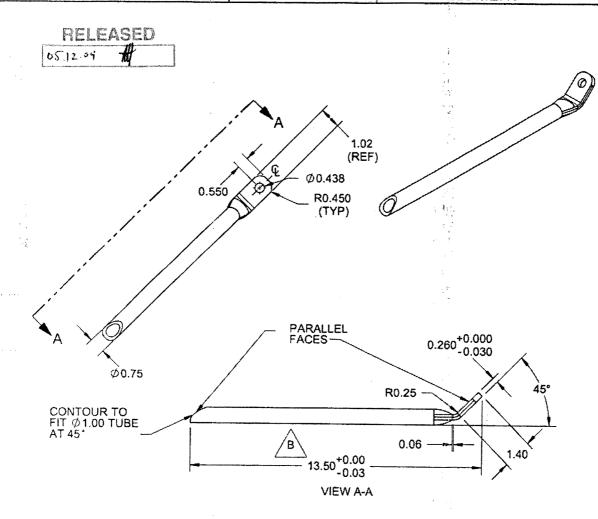


- 1) MATERIAL: AISI 316/304 SS SEAMLESS TUBING (REF. DART SPEC. M304TR1.000W.120) 2) FINISH: NONE 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED 4) ALL DIMENSIONS ARE IN INCHES 5) BREAK ALL UNMARKED SHARP EDGES 0.005 TO 0.025

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|--------------|----------------|---|------------------------|--|--|--|--|--|--|
| CHECKED | APPROVED | DRAWING NO. | REV. B SHEET 3 OF 4 | | | | | | |
| DATE 05. | 12.05 | STEP WELDMENT | SCALE 1:4 | | | | | | |



D3463-7 DRAG ARM

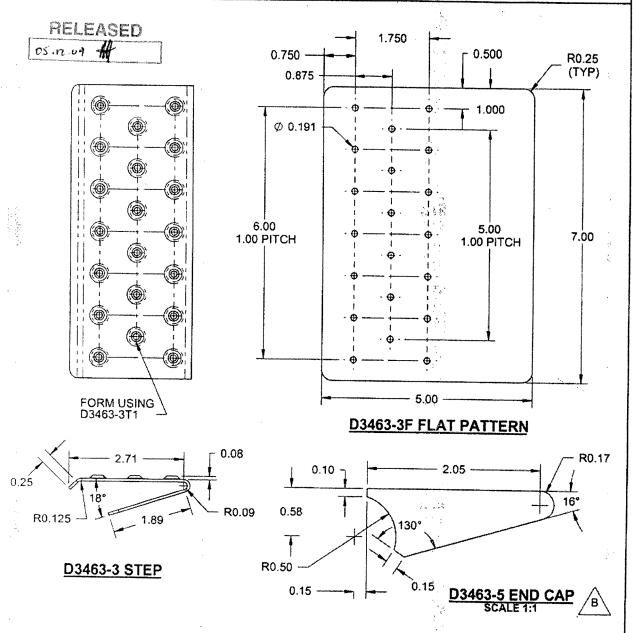
NOTES:

- 1) MATERIAL: AISI 316/304 SS SEAMLESS TUBING (REF. DART SPEC. M304TR0.750W.120) 2) FINISH: NONE 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED 4) ALL DIMENSIONS ARE IN INCHES 5) BREAK ALL UNMARKED SHARP EDGES 0.005 TO 0.010

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| DESIGN RF | DRAWN BY | DART AEROSPAC HAWKESBURY, ONTARIO, | |
|--------------|----------|---------------------------------------|------------------------|
| CHECKED | APPROVED | D3463 | REV. B SHEET 4 OF 4 |
| DATE 05.1 | 2.05 | STEP WELDMENT | SCALE 1:2 |



NOTES:

1) MATERIAL: AISI 304/316 SS SHEET, 0.060 THICK (REF. DART SPEC. M304S16GA) 2) FINISH: NONE
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
4) ALL DIMENSIONS ARE IN INCHES
5) BREAK ALL UNMARKED SHARP EDGES 0.005 TO 0.010

11/2

. . . 11.

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